

**RESPONSES TO OEPA COMMENTS ON THE
INTEGRATED ENVIRONMENTAL
MONITORING STATUS REPORT FOR
FIRST QUARTER 2000**

**FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO**

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U.S. DEPARTMENT OF ENERGY

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RESPONSES TO OEPA COMMENTS ON THE INTEGRATED ENVIRONMENTAL MONITORING STATUS REPORT FOR FIRST QUARTER 2000

COMMENTS

1. Commenting Organization: Ohio EPA
Section #: 2.2.1 Page #: Line #: Code: C
Original Comment #: 1
Comment: Interpretations of the significance of the liquid volumes in the Leak Detection System (LDS) of OSDF Cell 2 are complicated by several factors.

 - No reliable records were kept of liquid volumes prior to May of 1999.
 - Leachate "backups" from the Leachate Transmission System into the LDS of Cell 2 in the December 1999-January 2000 time period. The backup occurred despite the presence of a check valve. The slow flow of the backup from the LDS drainage layer cannot be distinguished from a leak in the Leachate Collection System (LCS).

The downward trend of total flows during the months of July (882 gallons), August (474 gallons) and September (102 gallons) are indicative of residual drainage from the backup. It is not reasonable to use the average flow during the third quarter of 1999 (3.8 gallons per acre per day, gpad) as a benchmark to compare the reduced flows during the fourth quarter. This rationalization was used in the last two Quarterly Reports. The Ohio EPA considers the reduced flow during the fourth quarter of 1999 to be the result of two factors

 1. The backup has by then been nearly completely drained
 2. Rainfall during the fourth quarter was low. Rainfall during October (2.46 inches total) and November (2.05 inches total) was quite low. December was wetter (3.44 inches total) but was distributed over six days of rain. We speculate that this rain was spread out enough to contribute more to hydrating the contents of Cell 2 rather than infiltrating to the LDS drainage layer.

Over 4 inches fell over the period of January 2 and 3, 2000. During the next monitoring period (January 4 through January 12, 2000), 0.264 gpad was found in the LDS. It is nearly impossible to escape the conclusion that rainfall correlates with LDS flow. The LDS flows have continued to increase to date.

Future discussions of the Cell 2 LDS flows should include quantifiable parameters such as:

 3. Analytical data for the LCS and LDS liquid
 4. Correlations between LCS and LDS flows
 5. The saturated volume of the LCS layer should be estimated as a function of total LCS flows. Assuming that flow only occurs through holes that lie within the saturated area, an attempt should be made to estimate the number of pinholes, the area of the holes, etc.
 6. Please refrain from comparing the current conditions to third quarter 1999 flows and from rationalizing measured flows as only being a small percentage of the action leakage rate.

Response: The U.S. Department of Energy (DOE) agrees that interpretations regarding liquid volumes in the Cell 2 leak detection system (LDS) have been complicated by leachate back-ups. The back-ups into the Cell 2 LDS occurred in the December 1998 to January 1999 time frame rather than the Ohio Environmental Protection Agency (OEPA) stated December 1999 to January 2000 time frame (Note: water did backup into the Cell 1 LDS primary containment vessel in January 2000. However, the volume of the backup was insufficient to cause a backup of leachate into the Cell 1 LDS). As stated in

Comment Response #4 on the Integrated Environmental Monitoring Status Report for Fourth Quarter 1999, "DOE feels that the water from the December 1998/January 1999 backups had likely drained out long before the third quarter of 1999. The basis for this is that the volume that could have backed up into the cell was such that it likely would not have extended more than a few feet into the cell and therefore would have drained out shortly after the manhole was pumped out. DOE feels that the bulk of the water coming out of the Cell 2 LDS during the third quarter was likely construction water. As described in Appendix A, Attachment A.6 of the 1999 Integrated Site Environmental Report, over 140,000 gallons of water fell as precipitation on Cell 2 during construction of its primary liner. The Cell 2 LDS water yield through the end of 1999 was 12,320 or about nine percent of the water that fell on the cell during construction of its primary liner."

DOE agrees with OEPA's conclusion that rainfall correlates with Cell 2 LDS flow in the January 2000 timeframe. This correlation was stated in the section that is the subject of this comment. Regarding the increasing flows from the Cell 2 LDS, DOE notes that the flows peaked near the end of June at 2.2 gallons per acre per day (gpac) and since have declined. The weekly reading for September 7, 2000 was 1.3 gpac.

Regarding future discussions of Cell 2 LDS:

- DOE agrees with OEPA's recommendation to continue to discuss the analytical data for the leachate collection system (LCS) and LDS. However, DOE prefers to wait until the new leachate transmission line becomes operable to compare the LCS flows to the LDS flows as the current system does not have the capability of quantifying individual cell LCS flows.
- Regarding the number of pinholes and area of the holes in the Cell 2 primary liner, DOE does not understand how this could be quantified using methodology described in OEPA's comment. DOE suggests that the Cell 2 liner performance monitoring continue as it has, with the additions noted in this response.
- In regards to comparing current Cell 2 LDS conditions to third quarter 1999 conditions, please refer to Comment Response #4 on the Integrated Environmental Monitoring Status Report for Fourth Quarter 1999, which states, "It is important to DOE to compare quarter to quarter accumulation rates as they are key indicators of how the liner is performing." Therefore, DOE will continue to provide quarter to quarter comparisons of the LDS accumulation rates.
- It is not DOE's intent to "rationalize" the Cell 2 LDS flows, rather it is DOE's intent to put the flows into proper perspective by comparing them to the design-established initial response flow rate. Therefore, DOE intends to continue to report LDS accumulation rates with respect to the design-established initial response leakage rate.

Action: DOE will do the following: 1) Begin to compare cell-specific LCS-LDS flows when cell-specific LCS flow monitoring capability becomes available in 2001; 2) continue to provide quarter to quarter comparison of LDS accumulation rates in future Integrated Environmental Monitoring Plan (IEMP) quarterly summary reports; and 3) continue other reporting as noted in the response.

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reporting of results has been one of our biggest frustrations. Based on the results reported on this data disk, it appears as though some results could have been reported earlier. Please explain.

Response: The results pertaining to SWR-01, which were collected on March 22, 2000, are associated with the NPDES Permit. The results collected from this location on March 15, 1999 are associated with the IEMP characterization program. DOE has made every effort to get the data as soon as possible according to the current IEMP reporting scheme. Because NPDES monitoring has additional reporting constraints (i.e., monthly reports), DOE has prioritized getting the data associated with NPDES monitoring through the internal evaluation system and the site database structure as soon as possible in order to meet these additional reporting constraints.

The issue of timely data reporting is a subject of DOE's current re-evaluation of the IEMP reporting process. As discussed in the August 31, 2000 OEPA/DOE/Fluor meeting, DOE intends to establish an extranet site to allow the agencies access to IEMP data in a more expedient manner. This will reduce the time from when the data are collected to when results are reported to the agencies.

Action: DOE will continue to report data accompanying the IEMP reports under current time constraints and will document the new IEMP data reporting strategy in the IEMP, Revision 2, which will be submitted to the agencies for review in October of 2000. DOE will also start providing data on the extranet site during 2000 in order for the agencies to start utilizing this data site.

6. Commenting Organization: OEPA

Commentor: DSW

Section #: 3.3

Page #: NA

Line #: NA

Code: C

Original Comment #: 6

Comment: This section states that two total uranium samples were missed during January at SWD-02 and S3WD-03. Samples from SWD-03 had been missed previously as well. This states that "This issue was communicated to the project and corrected during the subsequent months." It is our understanding that the sampling of these locations is the responsibility of the IEMP and not projects. During development of the IEMP we understood that the sampling locations listed in the IEMP were the responsibility of the Integrated Environmental Monitoring Program and that project specific sampling would not fall under the IEMP, but under the specific project. This statement seems to indicate that the sampling of these locations is now done under a project. Please explain. Also please give more details on the cause for continuing to miss sampling and what is being done to correct this.

Response: The responsibility for sampling under the NPDES Permit program and the IEMP Surface Water Characterization program falls to the Operations Department under the Aquifer Restoration and Wastewater Project. The reference to "the project" is a reference to this group and is not intended to imply project specific sampling.

DOE acknowledges that there have been instances of missed samples in previous quarters. We have increased our efforts to improve communications with sampling personnel by way of monthly sampling meetings designed to ensure the necessary sampling preparation is in place prior to the beginning of a particular quarter or month. Additionally, DOE is committed to begin sampling at the beginning of the month or quarter increasing the chances of successfully obtaining the required samples.

Action: No action required.

7. Commenting Organization: OEPA Commentor: DSW
 Section #: 3.1 Page #: NA Line #: NA Code: C
 Original Comment #: 7
 Comment: This section states that "Wastewater and storm water discharges from the Fernald site were in compliance 100 percent of the time during January and February 2000 (under the old permit)." However Ohio EPA records indicate January 2000 noncompliance with the discharge limitations specified in the FEMP NPDES Permit (reference Letter No. C:SWP.(ARWWP): 2000-0003). Please explain this omission.
 Response: DOE agrees with the comment. The FEMP did experience noncompliance with effluent limitations in January 2000 related to total suspended solids at both the Parshall Flume (PF 4001) and the Storm Water Retention Basin overflow (4002O). This comment serves to document the correction to the Integrated Environmental Monitoring Status Report for First Quarter 2000.
 Action: No action required.

8. Commenting Organization: OEPA Commentor: DSW
 Section #: 3.1 Page #: NA Line #: NA Code: C
 Original Comment #: 8
 Comment: The 1999 IEMP Annual Report, referring to TSS exceedances at the sewage treatment plant, states that "Due to improvements made in operating and controlling the sewage treatment plant, noncompliances were not experienced after April 1999". This would lead the reader to believe that no more exceedance are likely to occur. However, this report states that additional TSS exceedances were experienced at the sewage treatment plant during the first quarter of 2000 and refers the reader to the noncompliance report filed with the Ohio EPA in April 2000. That letter proposed potential causes and states that exceedances would likely be temporary (although they occurred in April as well). As it appears that further exceedances were not anticipated after April 1999, and they continued to occur in at least March and April of 2000, and this report was issued in late June, two full months after the noncompliance report referred to in this quarterly report, a more timely update with further explanation of the issues involved in these noncompliances would seem warranted in this report.
 Response: The 1999 Integrated Site Environmental Report attempted to provide a summary of the NPDES noncompliances occurring in 1999 including those issues relative to total suspended solids at the sewage treatment plant. The statement referenced above was not intended to guarantee that further noncompliances at the sewage treatment plant would not occur. For additional information, please refer to Comment Response #8 from the Responses to OEPA Comments on the 1999 Integrated Site Environmental Report.

The quarterly reports are prepared as an update and are not intended to repeat the findings of investigations conducted when preparing NPDES noncompliance reports. In order to provide a more timely update, OEPA will receive future noncompliance reports. These reports are due (if necessary) with the submission of the monthly discharge monitoring reports by the 20th of the month following the month of interest. Further questions can be addressed in the weekly conference calls after OEPA has had time to review the noncompliance report.

- Action: DOE will add OEPA to the distribution of NPDES noncompliance reports.

9. Commenting Organization: OEPA Commentor: OFFO
Section #: 4.0 Page #: General Comment Line #: NA Code: C
Original Comment #: 9

Comment: The assumptions and explanations about the increased dose contribution from Th-230 appear to be somewhat inconsistent. The text explains that the MEI is at AMS-3 along the east fence line and is elevated due to increased Th-230 emissions from the WPRAP project. According to the wind rose and WPTH-01 monitoring results one might expect AMS-28 to have a higher dose associated with it. The primary source near AMS-3 is now the OSDF. Previous elevated concentrations at AMS-3 were attributed to the STP. Offer some explanation as to why AMS-3 has the highest Th-230 ratio, and if any of the newer sampling changes the previous explanation for elevated concentrations at AMS-3.

Response: During the first quarter of 2000, the field activities associated with the on-site disposal facility and the sewage treatment plant projects were inactive. The on-site disposal facility was scheduled to resume remediation activities in the second quarter while the below grade decontamination and decommissioning of the former sewage treatment plant was completed in the fall of 1999. The only active remediation project capable of thorium-230 emissions during the first quarter of 2000 was WPRAP. Therefore, the increased thorium-230 levels measured at AMS-3 and other fenceline monitoring stations were attributed to emissions from WPRAP.

DOE recognizes that, based on a general evaluation of first quarter 2000 wind rose data, the highest thorium-230 ratios would be expected to occur in the northern and northeastern area of the site. However, the site is not a clear, level plain and there are a number of site features (various buildings, the on-site disposal facility, and the terrain of the Great Miami River Valley) which can channel the flow of air across the site in patterns that are different from the wind patterns measured at the meteorological tower. DOE does not find the high thorium-230 ratio at AMS-3 to be unusual or inconsistent with the wind patterns, terrain, or location of active remediation projects at the site.

Action: No action required.